

### REMARKS

This application has been carefully reviewed in light of the Office Action mailed on March 11, 2003. Claims 34, 38, 39, 42, 46 and 47 have been amended. A marked-up version of these claims, showing changes made, is attached hereto as Appendix A. Claim 51 has been added. Claims 1-51 are now pending. Please reconsider the above-referenced application in light of the amendments and following remarks.

At the outset, Applicants acknowledge with appreciation that claims 1-33 are allowed. Applicants also acknowledge with appreciation that claims 42-50 are in condition for allowance if rewritten to overcome the Office Action's objections. As a result, claim 42-50 have been amended to overcome the Office Action's objections. Further still, Applicants acknowledge with appreciation that claim 47 is in condition for allowance if rewritten in independent form. Accordingly, claim 51 has been added incorporating the claim limitations of claim 47.

Claims 39 and 47 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Claims 39 and 47 have been amended to overcome the Examiner's concerns. In particular, the phrase "and thereby at least partially contributing to said roughness reducing," has been eliminated from both claims. Accordingly, this rejection is now moot.

Claims 34-37 and 39-41 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Huggett. Reconsideration is respectfully requested.

Hugett does not teach a method of forming a chalcogenide structure, comprising, "forming a chalcogenide glass layer, forming a metal-containing layer . . . irradiating said metal-containing layer to break a chalcogenide bond . . . [and] exposing an outer surface of the chalcogenide glass layer to an iodine comprising fluid, wherein said iodine comprising fluid removes at least a portion of said outer surface," as recited in claim 34 (emphasis added). Huggett does not teach that the iodine comprising fluid removes at least a portion of the outer surface of the chalcogenide glass layer.

Claims 35-37 and 39-41 depend from and incorporate all of the limitations found in independent claim 34 and are at least allowable for the reasons set forth above with regard to claim 34. Accordingly, the withdrawal of this rejection with regard to claims 34-37 and 39-41 is solicited.

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As provided above, Huggett does not teach an "iodine comprising fluid [which] removes at least a <sup>(Ag)</sup>portion of said outer surface," from a chalcogenide glass layer as recited in claim 34. As a result, Huggett does not disclose the same process conditions as the Office Action asserts (Office Action, pg. 3). Accordingly, Huggett does not teach that "the irradiating is effective to form  $\text{Ag}_2\text{Se}$  as at least part of the outer surface, the etching being effective to etch away at least some of the  $\text{Ag}_2\text{Se}$ ," as recited in dependent claim 39. This is an additional reason for the allowance of claim 39.

Claim 38 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Huggett. Reconsideration is respectfully requested.

Claim 38 depends from and incorporates all of the limitations found in independent claim 34 and is at least allowable for the reasons set forth above with regard to claim 34. In particular, Huggett does not teach or suggest an "iodine comprising fluid [which] removes at least a portion of said outer surface," from the chalcogenide glass layer as recited in claim 34.

Moreover, Huggett does not teach or suggest the concentration of iodine within a potassium iodide solution, much less the concentration of potassium iodide solution. Huggett does not teach or suggest a "potassium iodide solution [which] comprises from 5 to about 30 grams  $\text{I}_2$  per liter of a from 20% to about a 50% potassium iodide solution," as recited in claim 38. In fact, Huggett does not teach or suggest any concentrations of iodine or potassium iodide solution. This is an additional reason for the allowance of claim 38.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

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Respectfully submitted,

By 

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APPENDIX A

34. (amended) [The] A method of forming a chalcogenide structure, comprising:

forming a chalcogenide glass layer;

forming a metal-containing layer over the chalcogenide glass layer;

irradiating said metal-containing layer to break a chalcogenide bond of the chalcogenide glass layer at the interface of the metal-containing layer and chalcogenide glass layer, such that at least a portion of the metal-containing layer diffuses into the chalcogenide glass layer; and,

after said step of irradiating, exposing an outer surface of the chalcogenide glass layer to an iodine comprising fluid, wherein said iodine comprising fluid removes at least a portion of said outer surface.

38. (amended) The method of claim 37, wherein the potassium iodide solution comprises from 5 to about 30 grams  $I_2$  [per 1 liter] per liter of a from 20% to about a 50% potassium iodide solution.

39. (amended) The method of claim 34, wherein the irradiating is effective to form  $Ag_2Se$  as at least part of the outer surface, the etching being effective to etch away at least some of the  $Ag_2Se$  [and thereby at least partially contributing to said roughness reducing].

42. (amended) [The] A method of forming a chalcogenide structure, comprising:

forming a first conductive layer on a semiconductor substrate;

forming a chalcogenide glass layer over said first conductive layer;

forming a metal-containing layer over said chalcogenide glass layer;

irradiating said metal-containing layer to break a chalcogenide bond of the chalcogenide glass layer at the interface of the metal-containing layer and chalcogenide glass layer thereby creating an outside surface;

removing at least a portion of said outside surface by etching with an iodine comprising fluid; and,

after said step of removing at least a portion of said outside surface, forming a second conductive layer over at least a portion of the [removed interface of said metal-containing layer and chalcogenide glass layer] outside surface remaining after said act of removing.

46. (amended) The method of claim 45, wherein the potassium iodide solution comprises from 5 to about 30 grams  $I_2$  [per 1 liter] per liter of a from 20% to about a 50% potassium iodide solution.

47. (amended) The method of claim 42, wherein the irradiating is effective to form  $Ag_2Se$  as at least part of the [outer] outside surface, the etching being effective to etch away at least some of the  $Ag_2Se$  [and thereby at least partially contributing to said roughness reducing].